

REMARKS

In the application, claims 1 through 6 and 20 are pending. No claims currently stand allowed.

The Office Action dated September 8, 2006, has been carefully considered. The Office Action rejects claims 1 through 3, 6, and 20 under 35 U.S.C. § 103(a) as obvious in light of U.S. Patents 6,499,114 (“Almstead”), 4,965,513 (“Haynes”), and 5,608,657 (“Conway”). Claims 4 and 5 are rejected as obvious in light of Almstead, Haynes, Conway, and U.S. Patent 5,319,513 (“Lowenstein”).

Applicant wishes to thank the examiner for the telephone interview conducted on November 9, 2006. In the interview, the examiner and applicant’s attorney discussed Level 3 of the claimed diagnostic system (see description below) and, in particular, the support for Level 3 in the specification. While no agreement was reached, the interview led to increased understanding of this element of claims 1 and 20.

In the present Amendment E, claims 1 and 20 are amended to clarify the relationship between Level 3 of the diagnostic system and the other levels.

Claim 1 describes a diagnostic system. While Almstead describes a two-level diagnostic system, claim 1, as currently amended, includes these four levels:

Level 1: “comparing the detected signals to a signal model maintained locally”

Level 2: “an initial analysis of the information by diagnostic tools maintained at the first computing device”

Level 3: “a subsequent analysis of the information by diagnostic tools maintained at a peer computing device located remotely from the first computing device”

Level 4: “a final analysis by a team of humans aided by a collaborative environment”

Conway invokes an analysis by a team of human experts if the on-site technician cannot resolve the problem (similar to the present invention’s Level 4). However, Level 3 of claim 1 is neither taught nor suggested anywhere in the cited art.

The Level 3 diagnosis is discussed in the specification at paragraph [0034] on page 8 and, for a particular embodiment, at paragraphs [0051] and [0052] on page 15. In brief, if a first remote computing device fails to diagnose the problem (that is, if the problem is not resolved at Level 2), then the first remote computing device queries its peer computing devices to find out if they are familiar with the problem (Level 3). Then the problem is either resolved at Level 3 using information provided by the peer remote computing devices, or the problem is passed on to the team of human experts (Level 4).

Nowhere does the cited art discuss calling in peer remote computing devices to help in the diagnosis. Therefore, Level 3 is unique to the present invention, and claim 1 is patentable even over the combination of Almstead, Haynes, and Conway.

The subject matters of claims 4 and 5 are entirely novel with respect to the cited art. In claim 4, when a sensor fails (“identifying a failed sensor”), the signal model is regenerated without that sensor (“regenerating the signal model based on remaining sensors”). In claim 5, the place of a failed sensor in the signal model is replaced by a replacement signal (“the method including the step of generating a sensor replacement signal”). The cited art discusses the use of multiple sensors, but it does not discuss failing sensors. Instead, Lowenstein discusses bringing a filter off-line to protect electrical circuitry. Thus, Lowenstein teaches an intelligent analog to blowing a fuse but does not teach detecting that one of its own sensors has failed. Also, and in consequence of this, nowhere in the cited art is a signal model regenerated to account for a failed sensor.

Claim 6 is also entirely novel over the cited art. In claim 6, a diagnostic is added to Level 2 (see example above) when an anomaly is diagnosed at Levels 3 or 4. Conway discloses a human technician contacting an expert to resolve a problem. However, Conway does not teach adding to the diagnostic tools, that is, enhancing the set of diagnostic tools in response to the resolution of a particular anomaly.

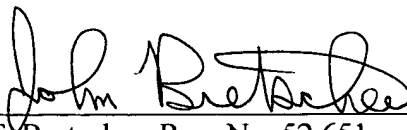
Claim 20 emphasizes that the Level 1 diagnosis can be strictly binary, that is to say, that Level 1 only detects an anomaly and leaves it up to the higher levels to determine the nature and extent of the anomaly. Almstead, on the other hand, performs a very complicated analysis at Level 1. The possibility for a binary Level 1 is supported by the decision box 508 of Figure 5a (Yes or No)

and by paragraph [0044] of the present application. For this reason, and for the reasons given above with respect to claim 1, claim 20 is also patentable over the cited art.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John T. Bretscher", is written over a horizontal line.

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